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Nov 1808, 80



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THE

# LIFE BOAT,

AND OTHER

LIFE-SAVING INVENTIONS.

BY

R. B. FORBES.

BOSTON:

A. WILLIAMS AND COMPANY,

283 Washington Street.

1880

Nov 1808, 80





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2

THE

*Cover*

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## LIFE-SAVING INVENTIONS.

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IN the "Journal of the National Life-boat Institution" for Aug. 2, 1880, may be found some interesting facts, and some illustrations of means in use in England for saving life. I take the liberty of copying the illustrations, and of making extracts from the printed matter, in the hope of doing something towards lessening the dangers of navigation, as well as the no less common danger of inland and long-shore waters.

In 1871, the society for the encouragement of arts, manufactures, and commerce, commonly known in England as "The Society of Arts," offered its gold medal for the best design for a ship's life-boat, which was won by the builders of the boats for the National Institution, for one built of wood, and the other of iron was won by the Winsor Iron-works of Liverpool. And again, after the great loss of life in the Thames by the sinking of the *Princess Alice*, Sept. 3, 1878, the Society offered their gold medal for the best means of saving life at sea, when a vessel has to be suddenly abandoned.

The following Committee was appointed :—

T. BRASSEY, Esq., M.P.

DONALD CURRIE, Esq.

Admiral M. NOLLOTH.

Admiral Sir ERASMUS OMMANEY, C.B., F.R.S.

Captain G. E. PRICE, R.N., M.P.

Admiral A. P. RYDER.

Admiral Sir E. SOTHEY, K.C.B.

Captain H. TOYNBEE.

After meeting several times and obtaining all available information on the subject, the Committee drew up and issued, in April, 1878, the following circular:—

The Council of the Society of Arts offers its Gold Medal for the best means of saving life at sea, when a vessel has to be abandoned suddenly, say with only five minutes' warning; the shore or other vessels being in sight.

1. Preference will be given to appliances to which fewest objections are established, on the score of their occupying valuable space, interfering with the storage of more important articles, being in the way, being unsightly, not being ready at hand, requiring more or less "fitting" when brought into use.

2. Preference will be given to appliances to which fewest objections are established on the part of medical men, on the score of the appliances being unhealthy.

3. Preference will be given to appliances to which fewest objections are established on the part of seamen, on the score of their being uncomfortable, inconvenient, &c.

4. Preference will be given to appliances which afford a buoyancy of, at least, 40 lbs. to each person on board, whether of the crew or a passenger.

N.B.—The cork life-belt, usually supplied, has a weight of 5 lbs. and a buoyancy of 20 lbs. It will float a man of ordinary dimensions, with his shoulders just-a-wash, provided all the rest of his body is under water. The life-belts placed in their boats by the ROYAL NATIONAL LIFE-BOAT INSTITUTION have a buoyancy of about 25 lbs., but only weigh 5 pounds, owing to the superior quality of the cork.

5. Preference will be given to the means of flotation which utilize articles already existing on board, so that no extra space will be required.

6. Preference will be given to appliances that are the least expensive, as to first cost and annual repair.

7. Preference will be given to appliances best able to stand the variations of climate, rough treatment, &c.

8. Neither boats nor rafts will be admitted to the competition, as it is almost certain that in the contemplated cases of abandonment neither of them could be lowered or cleared away in time, and because, even if the boats stowed outside could be cleared away, there would rarely

be sufficient space to provide means of safety for all the crew and passengers.

NOTE. — Of course, if there were time to clear away boats or rafts, they would be first attended to.

9. Cork belts, with a buoyancy of less than 40 lbs., will not be admissible, as it is most important that the mouth and nostrils of every one in the water be raised as far as possible above the surface. The ordinary life-belt, admirably suited for use in boats, and to support in the water persons accustomed to immersion in it, would frequently be quite insufficient in the cases contemplated for all non-swimmers, especially women and children.

10. No preparation of india-rubber or gutta-percha will be admissible, as, with the greatest precautions, they are not sufficiently proof against the effects of climate and of ill-usage.

NOTE 1. — It is to be understood that, under the special circumstances of the cases contemplated, all that is aimed at is to preserve life until the shore is reached, or the immersed persons are picked up. For this reason no provision is expected to be made for food or water.

NOTE 2. — Competitors are at liberty to draw a distinction between appliances most suitable to men-of-war, to passenger ships, to ordinary merchant ships; also between the different circumstances attending the sudden abandonment by day and a sudden abandonment by night.

The Gold Medal will be awarded for the appliance, or combination of appliances, which answer in the highest degree the various qualifications named above; but the Council is at liberty to withhold the Medal if, in the opinion of the Judges, nothing is submitted worthy of the award.

Appliances intended for the competition must be sent in not later than the 1st of August, 1878, addressed to the SECRETARY, Society of Arts, John Street, Adelphi, London, W.C., and must in every case be accompanied by a *short* description.

April, 1878.

(By Order.)

NOTE. — The date was extended by order.

In response to this appeal, no less than one hundred and thirty-six designs, models, and full-sized floating appliances were sent in; of these, twenty being rafts and three being boats, were disqualified by the terms of the appeal. Of the remainder, many, as is always the case in any such competition, were valueless, their originators being insufficiently acquainted with the ordinary circumstances and

special requirements in cases of disaster to ships from collision or wreck. Thus the Committee, in their Report to the Council of the Society, state that "Having carefully considered the circumstances attending the sudden loss, at a few minutes' warning, of various vessels of specified classes, we found that only a very small number of the 'Exhibits' were qualified, under the 'Instructions' in the Council's Circular, to compete for the Gold Medal."

It will readily be imagined that, from the diversity of appliances which might be of service to afford temporary buoyancy and safety to persons suddenly immersed in the sea, there would be no slight difficulty in selecting from amongst them the one appliance which would be of more service than all others. The Committee, therefore, wisely, we think, avoided that difficulty by deciding to bestow the Medal on the competitor who would be able to exhibit the greatest number of such appliances with a high standard of merit.

At the commencement of their deliberations they rightly attached much value to the 5th clause of the Circular of the Council, and had, they observe, to ask, as regards each class of vessel, "Have they any articles ready at hand with sufficient capacity, and suitable in every respect to our purpose, which are already buoyant, or, if not yet made buoyant, can be durably made so sufficiently to support one or two persons with their shoulders out of the water?"

They then proceeded to consider separately the circumstances and requirements of each class of vessel, distinguishing ships-of-war from merchant vessels, and subdividing the former into two classes, viz., the ordinary ship-of-war and the troop ship, often carrying, besides its crew, a thousand or more soldiers and a large number of women and children; and merchant vessels into four classes, viz., 1st, ordinary merchant ships, whether sailing or steamships; 2d, emigrant and other passenger sea-going ships; 3d, passenger ships on rivers; 4th, yachts, barges, &c.

## SHIPS-OF-WAR.

1. *Ordinary Ships-of-War.* — The Committee came, we believe, unanimously, to the conclusion that the most efficient means of floating all the crew at the shortest warning, with a reasonable prospect of saving them, when other ships or land might be near, would be afforded by *Buoyant Hammocks*.

Every man and boy in a ship-of-war is provided with a hammock, which when not in use is stowed on the upper-deck, and when engaged in battle would always be so; and since, without any additional cost, every hammock may be made amply buoyant by the substitution of a granulated cork mattress in lieu of the ordinary one stuffed with wool, or horsehair, it follows that no difficulty exists in the way of providing such a source of safety for our gallant seamen, who, apart from the ordinary dangers of the sea, will be likely to need such aid in all future naval wars, when the torpedo and the ram will be the cause of many a good ship suddenly foundering. Admiral RYDER, one of the members of the Committee above named, has, as is well known, for several years past, zealously given much time and attention to this subject; and has, although as yet fruitlessly, used every effort to induce the ADMIRALTY to provide buoyant mattresses for the crews of all our ships-of-war. As the Russian Imperial and Danish Royal Navies have been long since supplied with them, we may hope that ere long our own ADMIRALTY may be induced to adopt them.

In the 81st number of this Journal we published a Paper on the subject written by Admiral RYDER, and in the 83d number one by ourselves, with illustrations, showing the manner in which buoyant hammocks and berth mattresses are worn and used. See cuts in the Appendix.

2. *Troop Ships.*—The Committee recommend that, as in an ordinary ship-of-war, the ship's company should be provided with buoyant hammocks; but, as the soldiers when embarked are not provided with mattresses (which would occupy too much space), and as no article of their kits could be utilized by being made buoyant, they should be supplied with the simplest description of cork life-belts with ample buoyancy, which might be stowed on narrow shelves against the ship's sides, in their own messes.

#### MERCHANT SHIPS.

1. *Ordinary Merchant Ships, without Passengers,* the Committee place in the same category with ships-of-war, in so far that their berth mattresses should be buoyant, and so fitted that they could be quickly secured round the body of the wearer in the manner of a life-belt.

Such mattresses were fully described in the 83d number of the Life-boat Journal, above referred to. See Appendix.

2. *Passenger Sea-going Ships.*—In these, as in ordinary merchant ships, the Committee recommend that both the crew and passengers should be provided with buoyant berth mattresses. If life-belts should be also provided, they would be as an extra appliance; and, in addition, they consider that the chairs, stools, benches, seats, cushions, &c., if made permanently buoyant, would, in conjunction with the ordinary round life-buoys, be of much service in cases of sudden emergency. In emigrant ships, the cork mattresses to be provided by the owners, under the inspection of a Government official.

3. *Passenger Ships on Rivers.*—These have a crew of very few seamen, but frequently many hundred passengers. They have no mattresses, but numerous chairs, stools, benches, seats, and cushions, ready at hand, all of which



could be made permanently and sufficiently buoyant. *The gunwale itself could be made in sections of buoyant materials.*

4. *Yachts, Barges, &c.* — These to stand on the same footing as sea-going merchant ships, with passengers.

*Materials.* — Having laid down the above general principles, the Committee proceeded to consider the relative values of the different materials exhibited from which surplus buoyancy was derivable. Of these the most noteworthy were —

1. Cork, solid or in block, and granulated.
2. Air, enclosed in air-tight and water-tight covers or cases, bladders, &c.
3. Moose hair, and other deer hair.
4. A pith, from South Africa.
5. A seaweed, treated with a preparation to prevent absorption.
6. The stems of a plant called "Sola," from India, very light.

Of the above materials, Nos. 3, 4, 5, and 6 are lighter than cork, before being saturated with water, whilst enclosed air would be more or less so, depending on the weight of the material enclosing it.

The Committee observe, that the sea-freight chargeable on many of these articles, being levied on bulk and not on weight, would greatly enhance their cost, since they could not be compressed without diminution of elasticity and buoyancy. It is questionable, also, if some of them could be obtained in sufficient quantity to meet the great demand there would be for them if they were generally adopted. They are mostly, also, more absorbent of water than cork. After submitting them to experimental trial, *the Committee came to the conclusion that cork, both granulated and in block, was the safest, and therefore the best of all buoyant materials for saving life with which they were*

*acquainted.* They remark: "Block cork absorbs a little water after several hours' immersion; granulated cork absorbs more after the same number of hours; but cork, although its buoyancy is diminishable, retains it sufficiently for the time required, and is incompressible under any probable pressure; it is unobjectionable on sanitary grounds, is not injured by any extreme of climate, and, in block, stands well a considerable amount of ill-treatment even if left uncovered."

Mattresses stuffed with granulated cork have been in use many years; many persons, it is said, prefer them to hair mattresses; and if one-inch thickness of horsehair be added on one surface of a cork mattress, the comfort is all that can be desired.

At the present average market-price of good block cork, buoyancy derived from it can be given to any article at the rate of about 8s. per 40 lbs. of buoyancy, which might be lowered by competition.

The Committee, in making their award, then state that—

"Having arrived at the above conclusions regarding what articles should be made buoyant in each class of ships, and what buoyant material we should recommend, we are of opinion that, in each class of ships under consideration, the buoyant articles of Mr. A. W. Birt be recommended by us for the award of the Gold Medal."

The following is a list of the articles exhibited by Mr. Birt, for which the medal was awarded:—

1. A cork mattress for hammocks, faced with horsehair on one side. (Figs. 1, 2, and 3.)
2. A berth mattress of the same materials. (Figs. 4 and 5.)
3. A waterproof sheet, which, when placed within a hammock, enfolds the mattress and bedding, and adds 50 lbs. of buoyancy to that already possessed by the latter.
4. Soldiers' cork life-belts for troop ships, with a buoyancy equal to 40 lbs. (Figs. 6 and 7.)

5. A buoyant cushion.
6. A buoyant seat.
7. A buoyant camp-stool. (Figs. 8 and 9.)
8. A buoyant bench. (Figs. 10, 11, 12.)
9. A bulwark cork life buoy. (Figs. 13 and 14.)

Mr. Birt's exhibits were considered by the Committee to be far more complete in character, as well as in number and variety, than those of any other exhibitor.

After combating some strange objections that have been made by Naval officers to the provision of means of escape from danger in great emergencies, such as fire, sudden foundering from collision, or assaults by the ram or torpedo, the Committee state :—

The following are a few cases of vessels belonging to some of the various classes named, which have been lost during the last few years, in some of which many hundreds of lives would, without doubt, have been saved by such appliances as "buoyant hammocks," &c. :—

- (1.) H.M.S. *Bombay*, line of battle ship, burnt off Monte Video in daytime, in 1864, in fine weather, when nearly all the marines and boys were drowned within sight of the remainder of the officers and crew lying off in over-laden boats. Captain J. Wilson, R.N., now Commodore in Australia, then Commander of the *Bombay*, has repeatedly stated that *had the hammocks been buoyant, all the marines and boys would have been saved.*
- (2.) H.M.S. *Orpheus*, Commodore W. Burnett, lost in fine weather in the daytime, in 1863, with nearly all hands, on a bar in New Zealand. Had the hammocks been buoyant, most of the men would have been carried by the current through the surf to smooth water.
- (3.) H.M.S. *Eurydice*, capsized in a squall in daytime, in 1878, near the land and other vessels. Only two men were saved, one had secured a cork life-belt, the other a cork life-buoy. Had the hammocks been buoyant, the men would have been ordered to draw their knives along the covers, and many hammocks would have been freed. A buoyant hammock has much more buoyancy than a life-belt. If the outer part of the netting be "housed," it will occasion a very slight delay; but "housing" is quite unnecessary when the nettings are properly made.

- (4.) The case of the German ironclad, *Kurfürst*, lost by collision in 1878, was similar to that of the *Eurydice* in the suddenness of the catastrophe, the shortness of the warning; it was in the daytime, in fine weather, and other vessels were close to; yet only a few were saved.
- (5.) In the case of the *Northfleet*, in 1873, a merchant ship, full of passengers, sank when at anchor, after a collision at night; the warning was of about an hour, yet nearly all hands were lost.
- (6.) In H.M.S. *Vanguard*, an ironclad, lost by collision in 1876, in smooth water and a fog; the warning was of little more than an hour; most fortunately her sister ship, with an ample supply of boats, was close to.
- (7.) In the *Princess Alice*, a passenger boat with over 800 passengers, the warning was of less than five minutes; she was sunk by collision in the Thames on a fine night in 1878, and more than 600 lives were lost.

It is not a little remarkable that we have had during the last few years an example of almost every conceivable description of sudden disaster to ships, involving fearful loss or risk of life, *the former of which would have been diminished by life-saving appliances in nearly every case.* In a future war we shall probably have not infrequently to promptly abandon vessels after "ramming;" also owing to fatal injuries from *torpedoes*.

Every sailor in the Russian Imperial and the Danish Royal Navy is supplied with a buoyant mattress. Admiral Porter, in an official report of the condition of the United States Navy, urges the authorities to introduce *cork mattresses* in the Government service.

We need hardly state that we heartily indorse the wish of the Committee, that the competition and award, and the suggestions which after careful consideration and experiments they have proffered, may be the means of furthering the very important object in view, viz., the saving life at sea in cases of sudden disaster.

In conclusion, we will merely farther remark, as regards our ships-of-war, that surely our brave seamen are deserving of having every available means provided to lessen the dangers to which they are necessarily exposed. Even if not, in justice, entitled to it, their value — even their money

value, as trained seamen and gunners — would indicate its expediency, now that the torpedo and the ram will constitute special dangers, of a wholesale character, over and above those to which in time of war they have hitherto been exposed.

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In connection with the subject of life-saving hammocks, I would observe that, following up the suggestions of Admiral RYDER, I made some experiments several years ago under the superintendence of an officer of the Navy on board of the receiving ship *Ohio* when it was proven that any common hammock and a hair mattress put into a water-tight bag, securely tied at its mouth, would float indefinitely with two 32-pound shot attached to it, and as this bag would keep the contents dry for a long time, it was thought that it would in the long run prove superior in practice to a hammock provided with a cork mattress, which in the necessary drilling in order to make it a success would get wet, as well as the blanket and pillow, and so fail to become a popular sanitary as well as a life-saving device.

I published a pamphlet giving details of the experiments alluded to, and also some illustrations showing how easily the hammocks and light spars of a ship-of-war could be made into rafts capable, with the aid of the boats, of sustaining the whole crew. While perfectly satisfied in my own mind of the economy and practicability of my plan for saving life by hammocks, I do not call to mind a single word of commendation from Naval experts, and so I came unwillingly to the conclusion that the Naval officers to whom I sent my brochure were indifferent to saving of the blue-jackets; and, as promotion is very slow in time of peace, that they proposed to take their chance of surviving without the help of life-saving hammocks and beds.

I do not mean seriously to impugn the humanity of our Naval men, for I believe that individually and collectively there are none better than ours in any Navy ; but there is certainly strong evidence among them that they never expect to be drowned ! The many collisions of late seem to me to render this an appropriate time to call attention to life-saving gear.

In the Journal from which so much has been quoted, I find no reference to making all doors on board of ships serve as floats by placing air cases where the panels now are and adding handles and providing means for immediate unhooking. Neither is there any reference to making the tops of deck houses to serve as rafts by merely knocking out a key or two as the ship is sinking.

In addition to the life-saving hammock, I recommend every Jack-tar to furnish himself with a water-tight clothes-bag ; it may serve him a good turn sometime when his hammock might not be available.

No boat of a vessel of war should fail to have a cork belt for every man she carries, to be kept in her as part of her equipment.

R. B. FORBES.

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#### NOTE.

For reference to the cuts, see Appendix ; where is also given the directions for restoring suspended animation, with illustrations, according to the method used by the Royal National Life-Boat Institution.

## APPENDIX.

THE LIFE-BOAT OF THE ROYAL NATIONAL INSTITUTION.







Fig 1. — The Buoyant Hammock in use as a Life Belt.



Fig. 2. — The Buoyant Hammock secured so as to act as a Life Belt.



Fig. 3. — Two men sharing the Buoyancy of their Hammocks.



Fig. 4. — Berth Mattress, with numerous partitions, to prevent the cork from moving about; also with a hinge, with or without hair. This mattress contains 15 lbs. of Granulated Cork; buoyancy, over 60 lbs.



Fig. 5. — Man swimming with Mattress.

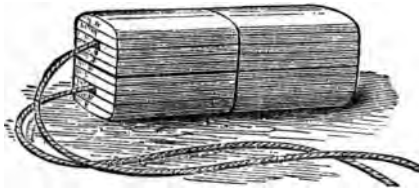


Fig. 6. — The Soldier's Cork Life Belt ready for Stowing.

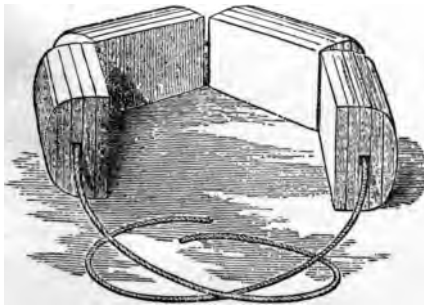


Fig. 7. — The Soldier's Cork Life Belt ready for putting on.

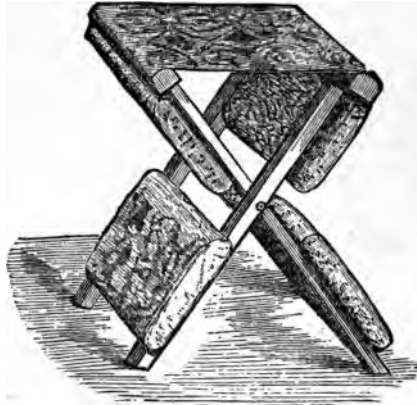


Fig. 8. — Camp Stool or Chair Life Buoy.



Fig. 9. — Camp Stool or Chair Life Buoy.

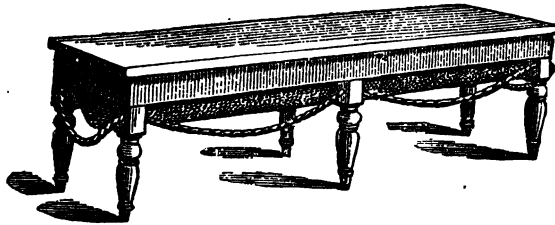


Fig. 10. — Bench fitted with Solid Cork.

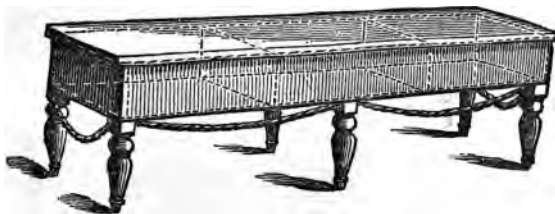


Fig. 11. — Bench fitted with Clarkson's Air Case.

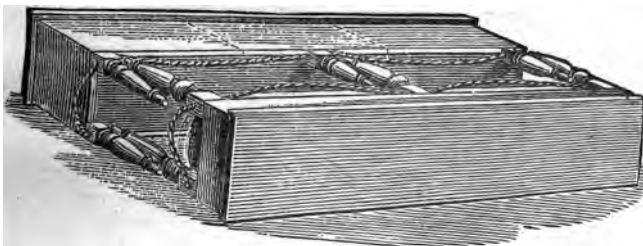


Fig. 12. — Two Benches lashed together forming a raft.

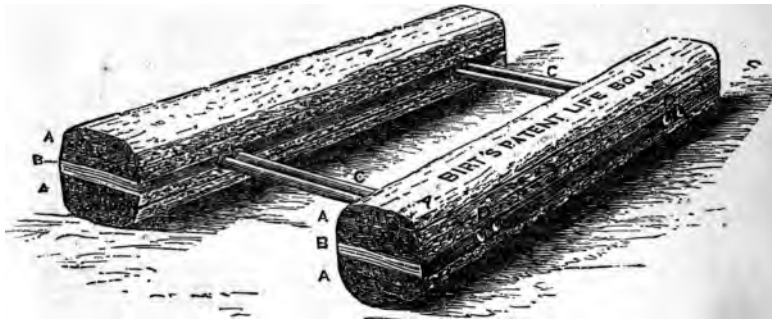


Fig 13. — Bulwark Life Buoy.

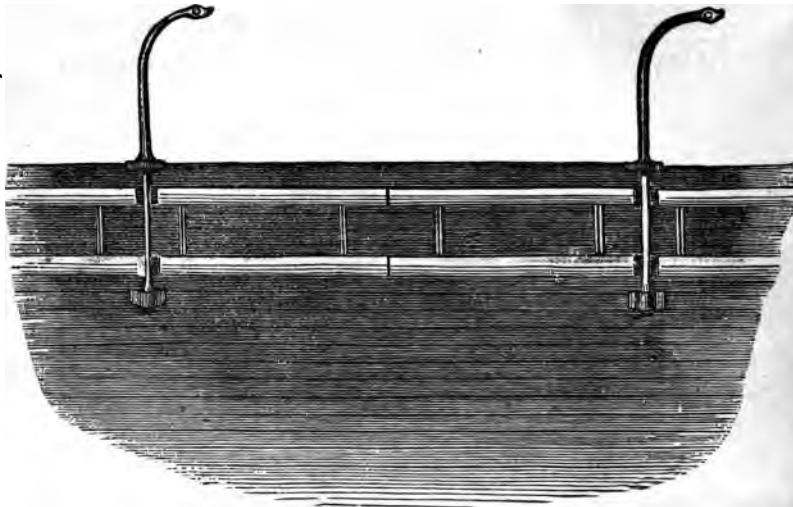


Fig 14. — Section of Bulwark showing Buoys placed so as not to interfere with the Davits.

[PORTABLE EDITION FOR THE POCKET.]  
**TREATMENT OF THE APPARENTLY DROWNED.**  
**ROYAL NATIONAL LIFE-BOAT INSTITUTION.**

*Incorporated by Royal Charter—Supported solely by Voluntary Contributions.*

**PATRONESS—HER MOST GRACIOUS MAJESTY THE QUEEN.**  
**VICE-PATRON—HIS ROYAL HIGHNESS THE PRINCE OF WALES, K.G.**  
**Secretary—RICHARD LEWIS, of the Inner Temple, Esq., Barrister-at-Law.**

**DIRECTIONS FOR RESTORING THE APPARENTLY DROWNED.**

THE leading principles of the following Directions for the Restoration of the Apparently Dead from Drowning are founded on those of the late Dr. MARSHALL HALL, combined with those of Dr. H. R. SILVESTER, and are the result of extensive inquiries which were made by the Institution in 1863-4 amongst Medical Men, Medical Bodies, and Coroners throughout the United Kingdom. These Directions have been extensively circulated by the INSTITUTION throughout the United Kingdom and in the Colonies. They are also in use in Her Majesty's Fleet, in the Coast-guard Service, and at all the Stations of the British Army at home and abroad.

**I.**

SEND immediately for medical assistance, blankets, and dry clothing, but proceed to treat the Patient *instantly* on the spot, in the open air, with the face downward, whether on shore or afloat; exposing the face, neck, and chest to the wind, except in severe weather, and removing all tight clothing from the neck and chest, especially the braces.

The points to be aimed at are—first and *immediately*, the RESTORATION OF BREATHING; and secondly, after breathing is restored, the PROMOTION OF WARMTH AND CIRCULATION.

The efforts to *restore Breathing* must be commenced immediately and energetically, and persevered in for one or two hours, or until a medical man has pronounced that life is extinct. Efforts to promote *Warmth and Circulation*, beyond removing the wet clothes and drying the skin, must not be made until the first appearance of natural breathing; for if circulation of the blood be induced before breathing has recommenced, the restoration to life will be endangered.

**II.—TO RESTORE BREATHING.**

TO CLEAR THE THROAT.—Place the patient on the floor or ground with the face downwards, and one of the arms under the forehead, in which position all fluids will more readily escape by the mouth, and the tongue itself will fall forward, leaving the entrance into the windpipe free. Assist this operation by wiping and cleansing the mouth.

If satisfactory breathing commences, use the treatment described below to promote Warmth. If there be only slight breathing—or no breathing—or if the breathing fail, then—

TO EXCITE BREATHING—Turn the patient well and instantly on the side, supporting the head, and

**1.—INSPIRATION.**



manner from the polished and satirical pen of the author of "Little Im Gods."



Excite the nostrils with snuff, hartshorn, and smelling salts, or tickle the throat with a feather, &c. if they are at hand. Rub the chest and face warm, and dash cold water, or cold and hot water alternately, on them. If there be no success, lose not a moment, but instantly—

**TO IMITATE BREATHING**—Replace the patient on the face, raising and supporting the chest well on a folded coat or other article of dress.

Turn the body very gently on the side and a little beyond, and then briskly on the face, back again, repeating these measures cautiously, efficiently, and perseveringly, about fifteen times in the minute, or once every four or five seconds, occasionally varying the side.

[By placing the patient on the chest, the weight of the body forces the air out; when turned on the side, this pressure is removed, and air enters the chest.]

## 2.—EXPIRATION



The foregoing two Illustrations show the position of the Body during the employment of Dr. Marshall Hall's Method of Inducing Respiration.

On each occasion that the body is replaced on the face, make uniform but efficient pressure with brisk movement, on the back between and below the shoulder-blades or bones on each side, removing the pressure immediately before turning the body on the side.

During the whole of the operations let one person attend solely to the movements of the head and of the arm placed under it.

[The first measure increases the expiration—the second commences inspiration.]

\*\*\* The Result is Respiration or Natural Breathing;—and if not too late, Life.

Whilst the above operations are being proceeded with, dry the hands and feet, and as soon as dry clothing or blankets can be procured, strip the body, and cover or gradually reclothe it, but taking care not to interfere with the efforts to restore breathing.

## III.

Should these efforts not prove successful in the course of from two to five minutes, proceed to imitate breathing by Dr. SILVERSTEIN's method, as follows:—

Place the patient on the back on a flat surface, inclined a little upwards from the feet; raise and support the head and shoulders on a small firm cushion or folded article of dress placed under the shoulder-blades.

Draw forward the patient's tongue, and keep it projecting beyond the lips: an elastic band over the tongue and under the chin will answer this purpose, or a piece of string or tape may be tied round them, or by raising the lower jaw, the teeth may be made to retain the tongue in that position. Remove all tight clothing from about the neck and chest, especially the braces.

**TO IMITATE THE MOVEMENTS OF BREATHING.**—Standing at the patient's head, grasp the arms just above the elbows, and draw the arms gently and steadily upwards above the head, and keep

Section of Bulwark showing Buoys placed so as not to interfere with the Davits.



# 1.—INSPIRATION.



*them stretched upwards for two seconds. (By this means air is drawn into the lungs.) Then turn down the patient's arms, and press them gently and firmly for two seconds against the sides of the chest. (By this means air is pressed out of the lungs.)*

Repeat these measures alternately, deliberately, and perseveringly, about fifteen times in a minute, until a spontaneous effort to respire is perceived, immediately upon which cease to imitate the movements of breathing, and proceed to INDUCE CIRCULATION AND WARMTH.

# 2.—EXPIRATION.



*The foregoing two Illustrations show the position of the Body during the employment of Dr. Silvester's Method of inducing Respiration.*

manner from the polished and satirical pen of the author of "Little Tim Gods."

#### IV.—TREATMENT AFTER NATURAL BREATHING HAS BEEN RESTORED.

To PROMOTE WARMTH AND CIRCULATION.—Commence rubbing the limbs upwards, with firm grasping pressure and energy, using handkerchiefs, flannels, &c. [*By this measure the blood is propelled along the veins towards the heart.*]

The friction must be continued under the blanket or over the dry clothing.

Promote the warmth of the body by the application of hot flannels, bottles, or bladders of hot water, heated bricks, &c., to the pit of the stomach, the arm-pits, between the thighs, and to the soles of the feet.

If the patient has been carried to a house after respiration has been restored, be careful to let the air play freely about the room.

On the restoration of life, a teaspoonful of warm water should be given; and then, if the power of swallowing have returned, small quantities of wine, warm brandy-and-water, or coffee should be administered. The patient should be kept in bed, and a disposition to sleep encouraged.

#### GENERAL OBSERVATIONS.

The above treatment should be persevered in for some hours, as it is an erroneous opinion that persons are irrecoverable because life does not soon make its appearance, persons having been restored after persevering for many hours.

#### APPEARANCES WHICH GENERALLY ACCOMPANY DEATH.

Breathing and the heart's action cease entirely; the eyelids are generally half closed; the pupils dilated; the tongue approaches to the under edges of the lips, and these, as well as the nostrils, are covered with a frothy mucus. Coldness and pallor of surface increase.

#### CAUTIONS.

Prevent unnecessary crowding of persons round the body, especially if in an apartment.

Avoid rough usage, and do not allow the body to remain on the back unless the tongue is secured.

Under no circumstances hold the body up by the feet.

On no account place the body in a warm bath unless under medical direction, and even then it should only be employed as a momentary excitant.

By order of the Committee,

RICHARD LEWIS,  
Secretary.

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